DRAFT - Crude Oil Sampling Plan

Property	Units	Test Method	Sample collection and analysis procedures	Notes, potential alternatives?, etc.
API Density	API Gravity	ASTM D5002	Manual canister collection of liquid from tank per ASTM D4057, offsite laboratory analysis	
Molecular Weight, liquid	lb/lb-mole	ASTM D2502	Manual canister collection of liquid from tank per ASTM D4057, offsite laboratory analysis	
Molecular Weight, vapor	lb/lb-mole	Calculation	Calculate vapor phase MW based on hydrocarbon speciation of liquid.	Calculate vapor phase composition based on Raoult's law for partial pressures from liquid speciation.
Reid Vapor Pressure	psia	ASTM D6377	Manual canister collection of liquid from tank per ASTM D4057, offsite laboratory analysis	Possible alternate method: - ASTM D323
Total Sulfur, liquid	% mass	ASTM D4294	Manual canister collection of liquid from tank per ASTM D4057, offsite laboratory analysis	
H_2S, liquid	ppmw or mg/kg	UOP 163	Manual canister collection of liquid from tank per ASTM D4057, offsite laboratory analysis	Possible alternate methods: - IP 570 - ASTM D7621 - ASTM D5623 - ASTM D3227
H_2S, vapor	ppmv	ASTM D5705	Stain tube detector (Lead Acetate Paper) test from tank vapor space and reading onsite. Field determination method.	Possible alternative methods: - IP 570 modified version for crude - ASTM D6021 - ASTM D4084 & D4323 Lead Acetate Reaction Rate - ASTM D5504 Chemiluminescence
Light Hydrocarbons Speciation (Up to C9), liquid	% mass	ASTM D7900	Manual canister collection of liquid from tank per ASTM D4057, offsite laboratory analysis	Target HAPs for analysis: - Benzene - Toluene - Ethylbenzene - Xylenes (m-, p-, o-) - 1,3-Butadiene - n-Hexane - 2,2,4-Trimethyl pentane - Ethylbenzene - Cumene - 1,2,4-trimethylbenzene - Naphthalene - Biphenyl

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